AMSAT News Service Weekly Bulletins
Issue: ANS-291
Date: 2009-10-18
Sources: amsat-ans-2009-ans-291-weekly.txt

AMSAT NEWS SERVICE
ANS-291

ANS is a free, weekly, news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

Please send any amateur satellite news or reports to:
ans-editor@amsat.org

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* AMSAT thanks Frank Bauer, KA3HDO and Janet Bauer and the entire   *
*   2009 Symposium Team for a spectacular and inspiring event!   *
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SB SAT @ AMSAT $ANS-291.01
AMSAT Says "We're Going Back to Space"

AMSAT News Service Bulletin 291.01
>From AMSAT HQ SILVER SPRING, MD.
October 18, 2009
To All RADIO AMATEURS
BID: $ANS-291.01

The Board of Directors has adopted the Engineering Task Force recommendation that low-cost launch options be immediately pursued. The AMSAT engineering team will develop a 1U CubeSat design effective immediately. Tony Monteiro, AA2TX, Vice-President of Engineering said, "We are recommending an approach that gets AMSAT back up in space with new satellites by leveraging the skills and technology we have today."

The new AMSAT CubeSat's initial capability is planned to add to the popular low-earth orbit FM transponder fleet allowing hams to continue to use their existing handheld and portable antenna systems. This also allows an accessible entry path for new satellite operators to get started. The existing FM satellites are starting to show their age.

The flight version of ARISSat-1 has been developed to fit into the CubeSat model. AMSAT's flexible Software Defined Transponder (SDX), simplified IHU, power control subsystem, external interfaces to experimental payloads and cameras will now allow a modular approach to mission design using proven subsystems and components. The ARISSat-1 mission planned in 2010 will be the initial flight test of AMSAT's modular satellite.

Here are some of the highlights ...

+ AMSAT will develop comparable AO-51 level of performance packaged into a 1U CubeSat. This includes a U-V transponder, V telemetry, U command receiver, IHU, power control. This can be done with our modular design.

+ This will be a U/V FM Transponder, not done before in a 1U CubeSat, which can be worked with a HT and a simple antenna. CubeSat power limitations are planned to be addressed through research and development of deployable solar-cells.

+ AMSAT will make our open-design satellite modules and technology available for other satellite teams to build into their missions.

+ This new approach will provide a reliable radio link for future CubeSats allowing university teams to concentrate on their scientific objectives.

+ The modular nature of the AMSAT CubeSat system will allow add-on missions utilizing several different types of modulation and bandwidth. These can be pursued with future low-cost CubeSat launch opportunities.

AMSAT President, Barry Baines, WD4ASW Annual Meeting Powerpoint Presentation has been posted at http://www.amsat.org

[ANS thanks the AMSAT Board of Directors for the above information]

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SB SAT @ AMSAT $ANS-291.02
AMSAT, IBM, SUNY-Binghamton Announce NextGen CubeSat Development

AMSAT News Service Bulletin 291.02
>From AMSAT HQ SILVER SPRING, MD.
October 18, 2009
To All RADIO AMATEURS
BID: $ANS-291.02

AMSAT will work with a university student engineering team to develop the NextGen Cubesat.

NextGen Program Manager, Alex Harvilchuck, N3NP introduced this new program at the AMSAT Symposium. Alex revealed program goals and its initial plans with a paper in the Proceedings and presentations to the AMSAT Board of Directors and to the attendees during Symposium sessions.

NextGen consists of AMSAT volunteer mentors working with IBM Global Services Systems Engineering Division, and SUNY-Binghamton (also called University of Binghamton) senior level engineering students participating in their 'capstone' engineering project.

Alex summarized the NexGen program goals:

+ Intial analysis of ARISSat-1, documenting the systems, and analysis of the lessons learned from ARISSat-1 and other prior spacecraft to create a building block architecture for future satellites.

+ Open, modular, evolutionary, and documented design based on this analysis.

+ Redesigning the ARISSat-1 Power Systems into a next generation power system using supercapacitors instead of batteries and reducing the

footprint of some of the boards.

+ Analysis and modification to the structure to incorporate deployable solar panels with a scalable design that will work for 1U, 2U and 3U sizes.

+ Design a Picosat-class bus structure that AMSAT, or any other University, can use for 1U, 2U, or 3U CubeSat spacecraft. AMSAT could make the open design available at low-to-no-cost to qualified University groups.

+ An Engineering Model of the NextGen CubeSat spacecraft bus will be on display at the Dayton Hamvention AMSAT Booth for everyone to study.

Alex summarized, "Starting with our initial core team of 34 students, plus advisers, mentors and volunteers at Binghamton University this will be an ongoing effort. It is not a one time event, but the start of a stable, evolutionary design process that will further STEM (Science, Technology, Engineering & Mathematics) with the Next Generation of engineers and amateur radio operators. We are looking for other individuals and University/School teams to participate in all aspects of the spacecraft design - RF Systems - Guidance, Navigation, Control & Experiment Systems - Power & Structure Systems."

Volunteer mentors are needed! Even if you only have an hour a week, you can mentor a student over the phone or you can peer review a document that the students are working on. If you have more than an hour a week, you can implement a small design change to an existing subsystem; you could respin the board layout to meet a reduced form factor; you could redesign a module to use different technology. Contact Alex via e-mail at amsat@elkmtn.org .

AMSAT's Board of Directors has approved the support of the University of Binghamton NextGen Cubesat Proposal and agreed to provide $1,200.00 in immediate funding to the Binghamton Foundation to support student expenses and initially budgeted $10,000.00 to cover material costs associated with hardware development between September 2009 and May 2010. The Board will review progress at the end of the first semester.

[ANS thanks Alex, N3NP and AMSAT Board of Directors for the above information]

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SB SAT @ AMSAT $ANS-291.03
Discussions Continue For New AMSAT Lab Site

AMSAT News Service Bulletin 291.03
>From AMSAT HQ SILVER SPRING, MD.
October 18, 2009
To All RADIO AMATEURS
BID: $ANS-291.03

AMSAT President, Barry Baines, WD4ASW discussed an opportunity under serious discussions with the University of Florida, Gainesville to locate AMSAT's satellite laboratory on campus.

Among discussions over the past 12 months, AMSAT has had conversations with several universities concerning a potential relationship. This opportunity arose out of an amateur radio talk given at The Villages ARC by Dave, AA4KN and Drew, KO4MA in April. This lead to contact with UF's Dr. Norman Fitz-Coy. A Memorandum of Understanding

has been drafted and is currently under review by legal teams. At this time there is no timeframe for bringing about a formal conclusion as the MOU discussions continue and internal UF approval still needed.

Relocating the AMSAT Lab from the 'Eastern Shore' to 'The Swamp' offers significant potential:

+ Location on a major university campus in a state-of-the-art building

+ Integrated into a facility focused on small satellite development with clean room installation at the host's expense (not AMSAT)

+ Potential for student projects focused on AMSAT needs

+ Broadening of AMSAT's presence in the wider university community

+ Potential research/development opportunities for AMSAT and AMSAT members

+ Establishing a program that offers significant traction for education outreach

[ANS thanks AMSAT President, Barry Baines, WD4ASW for the above information]

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SB SAT @ AMSAT $ANS-291.04
Canadian Hams to Share 430-450 MHz With Military System

AMSAT News Service Bulletin 291.04
>From AMSAT HQ SILVER SPRING, MD.
October 18, 2009
To All RADIO AMATEURS
BID: $ANS-291.04

Amateur Radio Newsline #1678 reported that Industry Canada has informed Radio Amateurs of Canada that it has authorized the Department of National Defense to use a digital system called Enhanced Position Location Reporting System or EPLRS in the 430 to 450 MHz shared 70 centimeter band. The EPLRS system consists of mobile, fixed, transportable and airborne stations that use 5 MHz-wide spread spectrum channels to provide strategic telemetry information for military platforms.

This authorization is on a no-protection, non-interference basis, which means that no new restrictions will be imposed on Canadian amateur operations in this band as a result. Industry Canada says that there is a slight chance of minor interference to amateur radio systems. Typically in the form of a minor audible clicking noise. If Canadian amateurs encounter such interference, they are requested to report it by e-mail to Radio Amateurs of Canada at regulatory at rac dot ca. The information reported should include the geographical location, date, time, frequency and mode being used by the amateur station, and a description of theinterference.

[ANS thanks Amateur Radio Newsline Report 1678 and RAC for the above information]

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SB SAT @ AMSAT $ANS-291.05

AO-51 Operations Schedule Posted

AMSAT News Service Bulletin 291.05
>From AMSAT HQ SILVER SPRING, MD.
October 18, 2009
To All RADIO AMATEURS
BID: $ANS-291.05

The AO-51 command team has posted the operating schedule for the remainder of October. For the latest Command Team and Operations Group news about AO-51 refer to:
http://www.amsat.org/amsat-new/echo/CTNews.php

October 17 - October 18

FM Repeater, V/U
Uplink: 145.920 MHz FM
Downlink: 435.300 MHz FM

JOTA Only FM Repeater, V/U
Please give way to JOTA stations or QSOs with JOTA stations
Uplink: 145.880 MHz FM
Downlink: 435.150 MHz FM

October 19 - October 25

FM Repeater, V/U
Uplink: 145.920 MHz FM
Downlink: 435.300 MHz FM

9k6 BBS, L/U
Uplink: 1268.700 MHz 9k6 FM
Downlink: 435.150 MHz 9k6 FM

October 26 - November 1

FM Repeater, V/US
Uplink: 145.920 MHz FM
Downlink: 435.300 and 2401.200 MHz FM

[ANS thanks AO-51 Command Team Member Mark, N8MH for the above information]

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SB SAT @ AMSAT $ANS-291.06
Satellite Shorts From All Over

AMSAT News Service Bulletin 291.06
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+ The American Radio Relay League (ARRL) has a feature story on the ARISS antennas that will be launched to the ISS on STS-129 in mid-November and installed on the Columbus module during the mission's second spacewalk. See:
http://www.arrl.org/news/features/2009/10/05/11110/?nc=1

+ Mineo Wakita, JE9PEL reports that at present FO-29 is only turned on once a week over Japan for testing of its power system.

+ Bob, N4HY has uploaded his camera phone pictures from the 2009
  Symposium at http://twitpic.com/photos/rwmcgwier

+ Although EME is a bit off topic, every ham wishes for antennas
  like these. Here is a video from the Echoes of Apollo event:
  http://www.youtube.com/watch?v=AHGXp4Afr4g&feature=related

+ Amateur satellite operators in range of the west coast will have
  an opportunity to work W6FOG as he sails from San Francisco to
  Puerto Vallarta departing on 10/19/09. Neil will be working many
  of the ocean grids on the way.

+ Jim, ND9M/VQ9JC is presently deployed on a Navy ship heading for
  Sumatra on a humanitarian mission with fresh water for the victims
  of the recent earthquakes there. Jim has been active with his FT897
  (TX) and the FT817 (RX) using an Arrow antenna and a UPS battery
  for power. He operates from the Helicopter Pad on the ship. JIm
  says, "There isn't much activity in the Indian Ocean but he is
  working VU's and E21's and handing out rare water grids!"

+ Hams like science so here are a couple of links to follow.

  National Geographic has a zoomable map of space exploration
  http://books.nationalgeographic.com/map/map-day/index After
  you close the opening text screen you will see the image zoom
  control in the top right of the page.

  This page contains an embedded video, "Do the Oceans of Jupiter's
  Europa Harbor Life?"

http://www.dailygalaxy.com/my_weblog/2009/10/europas-ice-sheet-enables-an-ox
ygenrich-ocean.html

[ANS thanks everyone for the above information]

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In addition to regular membership, AMSAT offers membership in the
President's Club. Members of the President's Club, as sustaining donors
to AMSAT Project Funds, will be eligible to receive additional benefits.
Application forms are available from the AMSAT Office. And with that
please keep in mind if you want to travel fast, travel alone. If you
want to travel far, travel together. If you want to travel in comfort,
fake an ankle sprain and convince the other travelers to carry you.

73,
This week's ANS Editor,
JoAnne Maenpaa, K9JKM